International Harmonized Research Activities - Intelligent Transport Systems
Working Group Meeting
October 3-4, 2000, Ottawa, Ontario

Minutes

Attendees:

Dr. Ian Noy (Chairman, Transport Canada, Canada)
Mr. Christopher Patten (National Road Administration, Sweden)
Dr. August Burgett (NHTSA, U.S.)
Dr. med. B. Friedel (BASt, Germany)
Mr. Kaneo Hiramatsu, (JARI, Japan)
Mr. Geoff Harvey (DETR, UK)
Mr. Ray Kieffer (AAM, U.S.)

1. Introductions

- I. Noy welcomed members.

- Nicole Pageot, Director-General of Transport Canada's Road Safety Directorate welcomed members and stressed the importance of the ITS WG work. She underlined Transport Canada's commitment to ITS HMI Safety issues, pointing out that the scientific aspects of ITS use are not well understood. The department's commitment to the IHRA WG reflects government's responsibility to ensure that ITS is as safe as possible.

2. Approval of Minutes

Minutes of the previous meeting were approved. The correct spelling of Mr. Parkin (UK) was noted. Most action items are complete or are in-progress.

3. Update on EU

I. Noy reported that he had corresponded with DG3 (Mr. Per-Ove Engelbrecht) and WG.29. The IHRA-ITS would like the WP29 to form a group on ITS (with a focus on HMI). Jan Jerie (WP.29) responded indicating that HMI guidelines, based on the U.K. Statement of Principles, have been incorporated in the R.E.3. He further indicated that WP.29 will discuss how to address ITS matters and, in particular, collaboration with IHRA. There was an opportunity to meet with Jan Jerie during the WG meeting as he happened to be in Ottawa at the same time for a meeting of the GRE.

G. Harvey will pursue further opportunities to recommend to WP.29 that IHRA-ITS WG become the forum of future ITS discussions and regulation development. Japan,

Germany, US, and Sweden can also make the same recommendation to the WP29 pending approval from the IHRA Steering Committee.

G. Harvey described European Council Road Safety White Paper, noting the work of the High Level Group (HLG) for ITS and safety.

G. Harvey to send a copy of the White Paper to I. Noy, including EC response

G. Harvey to send I. Noy the names of the chairs of the relevant HLG

I. Noy to write to HLG to introduce IHRA-ITS and suggest collaboration

The EC HMI Statement of Principles (SOP) was discussed in some detail, especially how European governments will respond to EC recommendations.

- The UK has had contact with the Netherlands and Sweden.
    - The UK has subcontracted the task of preparing response (Annex 1), which will include examining potential conflicts between SOP and practice, and using the TRL checklist as a guide. Initial efforts are aimed at assessing the extent to which SOP is known and used. The second year will concentrate on assessing adherence to the SOP and identification of problems faced by industry
- Sweden has met with its industry and has had contact with Germany, UK & Holland.
    - An MOU is being drafted. The MOU will explore what is meant by recommendations & how do to measure compliance.
- Germany has defined a 3-step process: 1) research to operationalize variables, 2) invite car, electronic industry and ERTICO to a workshop to to discuss variables & measures and define response format, 3) BASt will do the evaluation based on the variables defined earlier.

B. Freidel suggested that the IHRA-ITS WG could play a useful role in developing a framework which would be used by EU countries in formulating their reply. He further proposed that the HLG might recommend to EC the development of a common format.

B. Freidel to contact Holland, U.K., Sweden & France regarding their views on proposing a coordinated reply to the recommendations.

G. Harvey & C. Patten to contact their respective HLG members to support developing a coordinated reply to the EC and involving the IHRA-ITS WG.

4. Project Reports

4.1 Project 1: Development Of A Harmonized Safety Evaluation Methodology Framework (Worldwide) *LEAD: Augello, Pauzié*

Prior to the meeting, A. Pauzié had sent a questionnaire (Annex 2) to WG members for distribution within their respective countries. The questionnaire was discussed in detail and it appears that the original intent of the questionnaire has changed somewhat and there was need for clarity.

I. Noy to write to A. Pauzié, noting the following:

1. It was agreed that the questionnaire should be sent directly to Project 1 members as well as the invitees/participants of the 1999 Washington workshop. I. Noy to send a file containing the contact information for all of the invitees/participants. Responses should be returned directly to A. Pauzié for analysis.

2. The survey should be re-written for an external audience with a short introduction about the project.

3. Each of the 14 techniques should be elaborated, with short definition and one or two examples (where possible), so that readers have a clear understanding of what these techniques are.

4. Related to point 3, there is some overlap between techniques which needs to be rationalized.

5. There was a question about whether there is a need to distinguish between IVIS and DACD.

6. It was felt that the survey should solicit responder input. Therefore, it is recommended that Pauzié's ratings and comments be removed from the questionnaire.

7. It was not clear under which technique the peripheral detection task (PDT) would be placed?

8. More explicit instructions should be provided for soliciting comments. For example, we discussed asking respondents to comment on the merit of defining safety-critical values for some parameters such as glance duration, time of use, etc. We also discussed asking respondents to identify the areas where more research is required.

9. Additional space should be provided for other techniques (to be added by respondents)

10. Some guidance is required to help respondents consider IHRA relevancy

11. Techniques are not all applicable to all on-board systems. There needs to be a way to indicate to which systems the technique is/isn't applicable. Perhaps this should be indicated in the comments section.

12. There is an inconsistency in the scoring method. In one area it is requesting a rating of 0-4, but later a star system is used.

4.2 Project 2: Driver Understanding And Expectation Of ITS Systems: Identification And Measurement Of The Effects Of False Expectation Of Driver Performance, *LEAD: I. Noy*

I. Noy indicated that the prospects for collaborative research in this area is very limited, despite the fact that there is relevant research underway in various parts of the world.

It was proposed, therefore, to narrow the scope of the project to the exchange of relevant research data, findings and knowledge.

Transport Canada is planning research which will examine the issue of driver expectation, and, in particular, the effects of false expectation. Two complementary experiments are being planned to investigate behavioural adaptation to lane departure warning system (LDWS): 1) simulator 2) instrumented vehicle.

Both studies will have similar experimental design - they will involve three driving sessions; baseline, test and post-test. Half of the subjects will be driving with a LDWS during the test condition and the other half will not receive any warnings. Drivers will also be required to perform a secondary task such as navigation data entry or tuning a radio. The effect of trust will be investigated by varying the reliability of the LDWS. During the post-test, the reliability will be altered to determine whether drivers develop a reliance on the system and the extent of error recovery when reliability drops unexpectedly. The dependent measures will include: frequency of warnings/lane departures, lateral lane deviation (SD), degree of trust in system, internality/externality, and sensation-seeking.

4.3 **Project 3: Human Factors Principles Checklist For In-Vehicle Systems,** *LEAD: B. Friedel & C. Patten*

The Stockholm workshop rounded off this project for the time being. While it raised many queries regarding checklists as a tool, it was found to have some screening value in identifying potential problem areas. Further work is limited since the industry is not likely to share checklists in actual use. However, it was noted that the Ford checklist was published in Vision and Vehicles

This project group may be called upon to help develop the framework for EU governments' responses to EC recommendations concerning the SOP.

C. Patten to review Stockholm recommendations concerning future development.

C. Patten to map the TRL checklist to the SOP.

As a follow up to the use of checklist for *SafeTE*, Sweden & Germany will collaborate in the use of experiments using peripheral detection task (PDT) (see Annex 3). This work falls under Projects 6 and 1 (see Annex 4).

4.4 Project 4: Normative Data On Naturalistic Driving Behavior, *LEAD: A. Burgett*

The US is planning large-scale studies to collect nationalistic data. Few other countries are involved to this extend. The data will be shared with the WG.

4.5 Project 5: Simulator Reference Test Scenarios, *LEAD: C. Patten*

K. Hiramatsu presented a template (Annex 5) for a survey of simulator users that would help define minimum system requirements for evaluating safety. He indicated that there are over 20 Japanese papers that have been analyzed. He indicated that there are a number of issues that need further thought, including how to plan for changing technologies and simulators standards, whole test scenarios vs scenario tiles, how to account for simulator idiosyncratic effects, etc.

The merit of holding a workshop of simulator users (researchers) to address some of these issues was discussed. Further details are provided in Annex 4.

C. Patten to contact Swedish researchers regarding the template and the workshop.

4.6 Project 6: Improved Secondary Task Methodology For Evaluating Safety Effects Of Driver Workload, *LEAD: K. Hiramatsu*

K. Hiramatsu indicated there has been little contact thus far with other project members. There are inherent difficulties in coordinating research using standard secondary task methodology across research institutes. A special meeting will be considered to consider this.

The joint Swedish-German study using PDT falls under this project and will be monitored.

K. Hiramatsu announced that Japan allocated funds for a 3-year project in the area of workload, driver adaptation and integration. The research will be conducted in Japan. K. Hiramatsu will check about sharing plans and results of the research with WG.

4.7 Project 7: Harmonization And Validation Of Surrogate Safety Measures, *LEAD: A. Burgett*

This project was not discussed.

5. National Research

5.1 Japan

Research activities of HMI in Japan are briefly outlined in Annex 6. There are plans to combine the Ministry of Construction and Ministry of Transport.

A joint demo of SMARTCRUISE is planned for December in Tsukuba (Annex 7).

An International Workshop on ITS Human Interface was held in Japan in June (Annex 8)

The following papers were distributed:
Design Principles of the Advanced Safety Vehicle (Annex 9)
Driver Workload and IHRA-ITS Activity in Japan (Annex 10)

5.2 Sweden

A number of HMI research initiatives are underway in Sweden, including SafeTE, ISA, PDT and research at Volvo Development Corp. (Annex 11)

5.3 Canada

Transport Canada ITS-Related Research was described (Annex 12)

5.4 U.K.

Information sheet describing the Human Factors in Road Transport Telematic Network, ORACLE, is provided in Annex 13

Information concerning EC project ADVISORS is provided in Annex 14

5.5 Germany

A number of efforts are underway in Germany, including research into Intelligent Speed Management (ISM), proposal to pursue EC Project DEMAND, and development of ISO standards as well as cooperation with Sweden (see page 5).

5.6 U.S.A.

IHRA-related ITS safety research in the U.S. are described in Annex 15.

NHTSA sponsored a number of activities on driver distraction

The CAMP submission to NHTSA Internet Forum on driver workload and distraction (see www. driverdistraction.org) is provided in Annex 16. This project is not yet funded.

Presentation slides of A. Burgett concerning the Human-Centeredness of Intelligent Vehicle Systems are provided in Annex 17.

6. Five -Year Report

The draft Five-Year Report was discussed at length.

I. Noy to incorporate changes and send a revised draft for review by WG members within two weeks.

Revised Five-Year Report is enclosed as Annex 18

7. Next Meeting

Depending on Steering Committee response to the Five-Year Report, there may be a need to meet prior to ESV. If so, a teleconference will be held at the end of November with all WG members to decide the venue and dates of a meeting to be held in February or March. If there is no need for an interim meeting, the next meeting will be scheduled during ESV. The meeting at ESV will be 1.5 days, with a half day during the conference and the full day either pre or post conference, to be decided.

8. Action Items

- G. Harvey to recommend to WP.29 that IHRA-ITS WG become the forum of future ITS discussions and regulation development.
- Japan, Germany, US, and Sweden to make the same recommendation to the WP29.
- I. Noy to consider need for interim meeting and, if yes, arrange for a teleconference at the end of November with all WG members to decide the venue and dates of a meeting to be held in February or March.

8.1 Update on EU

- G. Harvey to send a copy of the European Council White Paper to I. Noy, including EC response
- G. Harvey to send I. Noy the names of the chairs of the relevant HLG
- I. Noy to write to HLG to introduce IHRA-ITS and suggest collaboration
- B. Freidel to contact Holland, UK, Sweden & France regarding their views on proposing a coordinated reply to the EC Recommendations.
- G. Harvey & C. Patten to contact their respective HLG members to support developing a common format for reply to the EC and involving the IHRA-ITS WG.

8.2 Project 1

- I. Noy to write to A. Pauzié, noting WG comments.
- A. Pauzié to revise and distribute questionnaire survey

8.3 Project 3

- C. Patten to review Stockholm recommendations concerning future checklist development.
- C. Patten to map the TRL checklist to the SOP.

8.4 Project 5

- C. Patten to contact Swedish researchers regarding holding a workshop at ESV and to obtain their comments on the Japanese template.

8.5 Project 6

- K. Hiramatsu to consider holding a special meeting to consider issues associated with developing standard secondary task methodologies and coordinating research across institutes.
- K. Hiramatsu will check whether he can share plans and results of the research in the area of workload, driver adaptation and integration with the WG.